

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Chris Sanchez

Site Investigation and Remediation Workplan (Supplemental Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.

This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by ECMC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27.

This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

Name of Operator: WESTERN OPERATING COMPANY	Operator No: 95620	Phone Numbers Phone: (303) 726-8650 Mobile: ()
Address: 1165 DELAWARE STREET #200		
City: DENVER	State: CO	Zip: 80204
Contact Person: Steve James	Email: steve@westernoperating.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 20892 Initial Form 27 Document #: 402869394

PURPOSE INFORMATION

- Rule 913.c.(1): Pit or Cuttings Trench closure.
- Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- Rule 913.g: Changes of Operator.
- Rule 915.b: Request to leave elevated inorganics in situ.
- Other: _____

SITE INFORMATION

Yes Multiple Facilities

Facility Type: WELL	Facility ID: _____	API #: 061-06792	County Name: KIOWA
Facility Name: LANCASTER 1	Latitude: 38.542030	Longitude: -102.099860	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENW	Sec: 35	Twp: 17S	Range: 42W Meridian: 6 Sensitive Area? No
Facility Type: LOCATION	Facility ID: 324903	API #: _____	County Name: KIOWA
Facility Name: LANCASTER-617S42W 35NENW	Latitude: 38.542030	Longitude: -102.099860	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENW	Sec: 35	Twp: 17S	Range: 42W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Agricultural

Is domestic water well within 1/4 mile? No

Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

The Lancaster #1 tank battery and wellhead share a location and is surrounded by vacant land in all directions. There are no residences within a quarter mile of the Site. There are no groundwater well permits mapped within a quarter mile of the Site. Groundwater depth is unknown, but groundwater permit 163526 approximately 0.67 miles west of the Site, reported a static water level of 59 feet below ground surface (ft-bgs) at the time of completion. There is no surface water mapped within a quarter mile of the Site. There are no additional sensitive areas or wildlife habitats identified within a quarter mile of the Site.



SITE INVESTIGATION PLAN

TYPE OF WASTE:

- E&P Waste Other E&P Waste Non-E&P Waste
- Produced Water Workover Fluids
- Oil Tank Bottoms
- Condensate Pigging Waste
- Drilling Fluids Rig Wash
- Drill Cuttings Spent Filters
- Pit Bottoms
- Other (as described by EPA)

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
No	SOILS	No known impacts	Laboratory Analysis

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

Western Operating proposes to plug and abandon (P&A), and conduct closure of the Lancaster #1 well and battery. Plugging and abandonment of the well is planned for 4th quarter 2022. Cut and cap, and tank battery closure activities, are planned to commence and be completed approximately 10 days after P&A activities are complete. Western Operating will conduct site investigation activities, field screening, and confirmation soil sampling activities during closure of all qualifying equipment in accordance with COGCC 900 Series Rules. Discreet soil samples and, if necessary, groundwater samples, will be collected and analyzed pursuant to Rule 915, following the general sample collection guidance in Rule 915.e.(2) and Rule 915.e.(3). All waste generated during the closure activities will be managed and disposed of in accordance with Rules 905 and 906. See the attached Figure 1 for an illustration of the location of the Site.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

Soil samples will be collected from cardinal directions of the wellhead, as defined in Rule 911.a.(4) guidance document (9/20/21), and from the midpoint of on-location flowlines for field screening purposes. Discrete soil samples will be collected for laboratory analysis either in any area of observed hydrocarbon impacts, or adjacent to the cut and capped wellhead, below the wellhead flowline riser, below the separator riser, and beneath two above ground storage tanks. Soil samples will be submitted for laboratory analysis of full Table 915-1 analytes by ECMC approved methods. See the attached Figure 2 for an illustration of the facility layout and proposed soil sample locations.

Proposed Groundwater Sampling

Will groundwater samples be collected as part of this investigation? (Number, analyses, and locations of samples):

If groundwater is encountered during decommissioning and/or abandonment activities, a grab sample will be collected as soon as practical. If contaminated soil is in contact with groundwater or if free product/hydrocarbon sheen are observed, the release will be reported in accordance with Rule 912.b. Groundwater samples will be submitted for laboratory analysis full Table 915-1 organic analytes and inorganic parameters.

Proposed Surface Water Sampling

Will surface water samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan (summary):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 5 -- Highest concentration of TPH (mg/kg) 110
 Number of soil samples exceeding 915-1 0 -- Highest concentration of SAR 5.54
 Was the areal and vertical extent of soil contamination delineated? Yes BTEX > 915-1 No
 Approximate areal extent (square feet) 0 Vertical Extent > 915-1 (in feet) 0

Groundwater

Number of groundwater samples collected 0 Highest concentration of Benzene (µg/l) _____
 Was extent of groundwater contaminated delineated? No Highest concentration of Toluene (µg/l) _____
 Depth to groundwater (below ground surface, in feet) _____ Highest concentration of Ethylbenzene (µg/l) _____
 Number of groundwater monitoring wells installed _____ Highest concentration of Xylene (µg/l) _____
 Number of groundwater samples exceeding 915-1 _____ Highest concentration of Methane (mg/l) _____

Surface Water

0 Number of surface water samples collected
 _____ Number of surface water samples exceeding 915-1
 If surface water is impacted, other agency notification may be required.

OTHER INVESTIGATION INFORMATION

Were impacts to adjacent property or offsite impacts identified?

Were background samples collected as part of this site investigation?
 Six (6) background soil samples were collected from three (3) locations undisturbed by oil and gas activities near the Lancaster 1 wellhead and production facility. Background analytical results demonstrate that pH, arsenic and barium concentrations exist naturally at this location above Table 915-1 Protection of Groundwater Soil Screening Levels (GWSSLs). The average of arsenic and barium results were multiplied by 1.25 to establish a baseline background concentration of 1.84 mg/kg and 263 mg/kg respectively. The highest reported pH value was used to establish a baseline background upper pH limit of 9.26 for naturally occurring pH levels specific to this location. Additional background sampling will occur to further investigate native conditions for pH.

Was investigation derived waste (IDW) generated as part of this investigation?
 Volume of solid waste (cubic yards) _____ Volume of liquid waste (barrels) _____

Is further site investigation required?
 Additional background sampling will be conducted in 2024 to assess the native conditions for pH in soil at the Lancaster 1 wellhead and production facility.

REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? No

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.
 No organic compounds were reported above Table 915-1 Protection of Groundwater Soil Screening Levels (GWSSLs). Arsenic, barium, and pH concentrations above Table 915-1 GWSSLs and within site specific background concentrations were reported in all soil samples submitted for laboratory analysis, except for soil sample SEP01@0.5, which reported only arsenic concentrations above Table 915-1 SSLs and within background concentrations.

REMEDIATION SUMMARY

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.
 Based on site investigation activities and laboratory analytical results for confirmation soil samples collected from the Lancaster 1 wellhead and production facility, a remediation plan is not needed.

Soil Remediation Summary

In Situ Ex Situ
 _____ Bioremediation (or enhanced bioremediation) _____ Excavate and offsite disposal
 _____ Chemical oxidation _____ If Yes: Estimated Volume (Cubic Yards) _____

_____ Air sparge / Soil vapor extraction
_____ Natural Attenuation
_____ Other _____

_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____

_____ Excavate and onsite remediation
_____ Land Treatment
_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Other _____

Groundwater Remediation Summary

_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Air sparge / Soil vapor extraction
_____ Natural Attenuation
_____ Other _____

GROUNDWATER MONITORING

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

Groundwater was not encountered during facility closure activities.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other

Request Alternative Reporting Schedule:

Semi-Annually Annually Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

Report Type: Groundwater Monitoring Land Treatment Progress Report O&M Report
 Other _____

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).
If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Operator anticipates the remaining cost for this project to be: \$

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation?

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards _____

E&P waste (solid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

Volume of E&P Waste (liquid) in barrels _____

E&P waste (liquid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes _____

If YES:

- Compliant with Rule 913.h.(1).
- Compliant with Rule 913.h.(2).
- Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? Yes _____

Does the previous reply indicate consideration of background concentrations? Yes _____

Does Groundwater meet Table 915-1 standards? Yes _____

Is additional groundwater monitoring to be conducted? _____

Operator shall comply with the ECMC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

RECLAMATION PLAN

RECLAMATION PLANNING

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

Following facility closure activities, the location will be reclaimed in accordance with the COGCC 1000 series rules.

Is the described reclamation complete? No

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

Interim

Final

Did the Surface Owner provide the seed mix? _____

If YES, does the seed mix comply with local soil conservation district recommendations? _____

Did the local soil conservation district provide the seed mix? _____

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. _____

Proposed date of completion of Reclamation. _____

IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 12/01/2022

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/09/2022

Proposed site investigation commencement. 07/01/2024

Proposed completion of site investigation. 10/01/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. _____

Proposed date of completion of Remediation. _____

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

OPERATOR COMMENT

Facility closure activities and confirmation soil sampling at the Lancaster 1 wellhead and production facility occurred on January 23, 2024. Four discrete soil samples were collected from the four sidewalls of the excavation to cut and cap the Lancaster #1 wellhead (WH01) and were field screened using a photo-ionization detector (PID) calibrated with 100 parts per million (ppm) isobutylene gas. One discrete soil sample was field screened from the midpoint of on-location flowlines being removed (FS01@3). All field screening PID readings were less than 0.0 ppm, and no visual or olfactory evidence of impact was observed.

Soil sample AST01@4 and AST02@4 were collected from underneath the above ground storage tanks (AST). Soil sample SEP01@0.5 was collected from beneath the former separator/heater-treater. Soil samples were collected from the floor of the wellhead excavation (WH01@6), and sidewall adjacent to the former wellhead line riser (FLR01@3). All facility closure confirmation soil samples were submitted to Summit Scientific (Summit) in Golden, Colorado for analysis of the full list of Table 915-1 constituents in soil.

Additional background sampling proposed in Form 27 Supplemental (Document # 403720187) was conducted on September 6, 2024, using hand auger at off-location areas undisturbed by oil and gas activities, to further characterize site-specific natural pH conditions in soils. Laboratory analytical reports demonstrate that pH concentrations above ECMC Table 915-1 Soil Screening Limits exist naturally at this location ranging from 8.40 to 9.26. The highest reported background pH value was used to establish an upper pH soil screening limit of 9.26.

All site confirmation soil samples were compliant with respective Table 915-1 GWSSLs and site-specific background concentrations. Western Operating respectfully requests no further action determination, and closure of Remediation Project Number 20892.

A general location map is provided as Figure 1. Sample location and field-screening information is provided in Table 1. Soil sample and field screening locations are presented in Figure 2, and analytical results are summarized in Table 2, Table 3 and Table 4. Laboratory analytical reports, a photolog, and checklists are also attached.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: Ryan Finley

Title: Senior Project Geologist

Submit Date: 09/30/2024

Email: rfinley@entradainc.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with ECMC Rules and applicable orders and is hereby approved.

ECMC Approved: _____

Date: _____

Remediation Project Number: 20892

COA Type

Description

<u>COA Type</u>	<u>Description</u>
0 COA	

ATTACHMENT LIST

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

Att Doc Num

Name

403936133	FORM 27 DENIED
403939790	MAP
403939791	SOIL SAMPLE LOCATION MAP
403939794	ANALYTICAL RESULTS
403939796	ANALYTICAL RESULTS
403939797	ANALYTICAL RESULTS
403939798	LOGS
403939799	LOGS
403939801	LOGS
403939802	PHOTO DOCUMENTATION
404064938	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 11 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	This form is denied because the soil samples were delivered to the laboratory outside of the recommended temperature range and without attempts to cool the samples in transit. The Operator shall resample AST01@4, AST02@4, SEP01@0.5,WH01@6,WH01-N@3,WH01-W@3,WH01-E@3,FLR01@3,FS01@3 and analyze the soil samples for Table 915-1 Soil TPH (C6-C36), organic compounds in soils, and hexavalent chromium.	01/21/2025

Total: 1 comment(s)

